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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/784,707	02/15/2001	Angelo Bastioli	13929/TBA	3139

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EXAMINER	
CHANG, VICTOR S	

ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
03/28/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/784,707	BASTIOLI ET AL.	
	Examiner	Art Unit	
	VICTOR CHANG	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 March 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,7,8,10-32,39,40 and 46-51* is/are pending in the application.

4a) Of the above claim(s) *46 and 50* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7,8,10-32,39,40,47-49 and 51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/6/2008 has been entered. Claim 1 has been amended. Claims 1-4, 7, 8, 10-32, 39, 40, 47-49 and 51 are active.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. In response to the amendments, the grounds of rejection have been updated as set forth below. Rejections not maintained are withdrawn.

Claim Rejections - 35 USC § 112

4. Claims 2 and 3 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 2 and 3, the term “at least”, added in the amendment filed 5/9/2006, is new matter, because none of the Examples show the same cell distribution ranges as claimed.

Further, claims 47-49 are new matter, because the original specification lacks any evidentiary support that the claimed amount of amylose content is workable for making expanded product, i.e., the subject matter was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the applicants, at the time the application was filed, had possession of the claimed invention.

New matter must be cancelled in the next reply.

Rejections Based on Prior Art

5. Claims 1-4, 7, 8, 10-32, 39, 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Altieri [US 5153037].

Altieri's invention relates to a biodegradable shaped product comprising a close-cell expanded flour product. The cell size is typically about 100 to 600 microns and the bulk density of the product is from about 0.1 to 5 lb/ft^3 (i.e., 1.6 to 80.3 kg/m^3) [col. 7, lines 21-29]. Useful flours are starch materials preferably consisting of high amylose starch (fraction having linear molecular arrangement). Starches are obtained from various sources, such as potato, corn, tapioca, and rice, etc. Plant species can be genetically developed to provide high amylose starch. For instance, high amylose hybrid varieties of corn (amylomaize) have been developed to yield starch composed of over 45% amylose [col. 4, ll. 4-23]. While high amylose corn starch has been especially suitable, other starches which are useful include those derived from any plant species which produces or can be made to produce a high amylose content starch, e.g., corn, peas, barley and rice. Additionally, high amylose starch can be obtained by separation or isolation such as the fractionation of a native starch material or by blending isolated amylose

with a native starch [col. 4, ll. 29-37]. The starch can be derivatized (modified) by known processes, such as esterification, etherification, oxidation, acid hydrolysis, or cross-linking and enzyme conversion (destructured or complexed starch) [col. 4, ll. 47-51]. The density, resiliency and flexibility of the expanded flour product can be improved by incorporating various synthetic polymers, such as polyvinyl alcohol, polyvinyl acetate, polyurethane, polystyrene, poly(ethylene vinyl acetate) and polyvinylpyrrolidone [col. 5, lines 28-32]. The modified and unmodified starches are biodegradable polymers of natural origin.

For claims 1-4, 7, 8, 10-32, 39, 40, Altieri is silent about the cell size distribution and the intrinsic viscosity of the foamed product in DMSO. However, since Altieri teaches the same subject matter of the same structure and composition, and made by the same process as the instant invention, workable range of cell size distribution and the process property related intrinsic viscosity are deemed to be obvious routine optimizations to one of ordinary skill in the art, dictated by the same utility of the expanded product as claimed invention. Regarding the selection of starch, since Altieri teaches that high amylose starch can be obtained by fractionation of a native starch material or by blending isolated amylose with a native starch, and potato, corn, tapioca, etc., are sources of starches, Altieri anticipates the Markush group of natural starch of claimed invention.

6. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Altieri [US 5153037] in view of Gallagher et al. [US 5219646].

The teachings of Altieri are again relied upon as set forth above.

For claim 51, Altieri teaches that the density, resiliency and flexibility of the expanded product can be improved by incorporating various synthetic polymers (synthetic polymer/starch

blends). Altieri is silent about forming the expanded product of a polyester/starch blend. However, Gallagher teaches that blends of starch with polyesters are useful for forming shaped articles of foams etc., for reduced costs and providing adequate strength and toughness properties. The polyesters are based upon polyethylene terephthalate (thermoplastic polymers) [abstract]. It would have been obvious to one of ordinary skill in the art to select polyester/starch blend to make Altieri's expanded product, motivated by the desire to obtain improved properties.

Response to Arguments

7. Regarding the amylose contents of starches, applicants argue at Remarks page 12 that

> "The amylose content of the starches is inherent. Evidence of its inherency is set forth in "Starch Chemistry and Technology" which is of record in the application."

However, the document "Starch Chemistry and Technology" was submitted in IDS dated 6/8/2004, which is not part of the original specification filed 2/15/2001, nor does anywhere in the original specification discuss the amylose content in "Starch Chemistry and Technology." The examiner maintains that claims 47-49 are new matter, because the original specification lacks any evidentiary support that the claimed amount of amylose content is workable for making expanded product, i.e., the subject matter was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the applicants, at the time the application was filed, had possession of the claimed invention.

Applicants argue at page 13 that

> "In the Office Action, the Examiner asserts that Altieri teaches that "[s]tarches from different sources, e.g., potato, corn, tapioca, and flee, etc, and unmodified or modified, may be used" (emphasis added). Altieri does <u>not</u> teach what the Examiner asserts. It is respectfully submitted that the Examiner has mischaracterized the disclosure at column 4, lines 4-15 and 38- 40."

However, since Altieri teaches that potato, corn, tapioca, and flee, etc., are sources of starches, and preferable high amylose starch can be obtained by fractionation of a native starch material or by blending isolated amylose with a native starch, it is clear that *any* natural starches, including potato, corn, tapioca, and flee, etc., can be used. Even if the natural starches may have low initial amylose content, nothing prevents one of ordinary skill in the art from using them, by fractionation or blending, in the process of obtaining high amylose starch.

Applicants argue at page 14 that

> "One of ordinary skill in the art would not have been motivated to combine the teaching of Altieri with the teaching of Gallagher et al. Specifically, Altieri provides for extrusion of starch with relatively high moisture content. As shown in Table 3 at columns 11 and 12, the high amylose starch has an initial moisture content in the range from 8 to 20.4%, and additional moisture is added. Thus, the total moisture in the extrusion ranges from 12.8 to 26.4%.
> In contrast thereto, Gallagher et al., which makes use of polyesters, requires that the moisture content of the polyester be maintained to no more than 50 ppm during processing. Gallagher et al. further requires that the starch should be dried to a moisture content less than about 1% (See column 10, lines 22-51)."

However, Table 3 of Altieri merely shows the effect of moisture on the expanded flour product. Since Altieri teaches that workable moisture content is 21% or less [col. 3, ll. 52], there is nothing whatsoever taught by Altieri that high moisture content is required. Further, Gallagher teaches that the starch should also be dried, but only needs drying to moisture level less than about 1% [col. 10, ll. 35-38]. It would have been obvious to one of the ordinary skill in the art to combined the teachings of prior art, at the time the invention was made, with a reasonable expectation of success, and motivated by the desire to obtain improved properties.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VICTOR CHANG whose telephone number is (571)272-1474. The examiner can normally be reached on Tuesday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/VICTOR CHANG/
Primary Examiner, Art Unit 1794